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Circular No. 10—Radio. (Fifth Edition—Revised.)

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
C. F. MARVIN, Chief

Forecast Division

Washington, D. C., January 1, 1932

DISTRIBUTION OF WEATHER INFORMATION, FORECASTS, AND WARNINGS BY NAVAL RADIO FOR THE BENEFIT OF MARINE INTERESTS ON THE PACIFIC OCEAN AND COAST

(In cooperation with Office of Communications, Navy Department)

The Weather Bureau issues daily (Sunday and holidays included) bulletins containing weather reports, forecasts, and warnings for the benefit of marine interests in the eastern waters of the Pacific and in the States bordering on that ocean. These bulletins are broadcast from Naval Radio Stations, and beginning January 1, 1932, will conform to the provisions of this Circular.

All time referred to herein is 120th meridian (Pacific standard time) and its equivalent in GCT, unless otherwise specifically indicated.

MAJOR MARINE BULLETIN

This bulletin is broadcast from the San Francisco Naval Radio Station (call letters NPG) twice daily, as follows:

Morning bulletin at 7:30 a. m. (1530 GCT) on frequencies of 42.8 k. c. (7,000 meters), 108 k. c. (2,776 meters), and 4,385 k. c. (68.4 meters), simultaneously.

Evening bulletin at 7:30 p. m. (0330 GCT) on frequencies of 42.8 k. c. (7,000 meters), 108 k. c. (2,776 meters), and 4,385 k. c. (68.4 meters), simultaneously.

The bulletin is divided into two parts and invariably begins with the letters USWB (U. S. Weather Bureau).

The first part consists of surface weather conditions at a selected list of places, being based upon observations taken at 5 a. m. and 5 p. m., except as indicated.

The foregoing is followed by reports from ships in the North Pacific Ocean. Ship observations taken at 4 a. m. are included in the a. m bulletin, and 4 p. m. observations in the p. m. bulletin.

The second part of the bulletin consists of a summary of general atmospheric pressure distribution over land and sea, including the locations of "high" and of "low" areas and the barometer readings at their centers, wind and weather forecasts for Pacific offshore areas, and storm warnings for these areas.

The following is a list of places for which weather observations are included in the regular broadcasts. Only the key letters, and not the names of the places, are transmitted.

Key letters, stations, and locations

Key letters	Name of station	Latitude north	Longitude west
		° ′	° ′
NM	†Nome, Alaska	64 30	165 24
SPI	†St. Paul, Alaska	57 15	170 10
DH	†Dutch Harbor, Alaska	53 55	166 30
TN	†Tanana, Alaska	65 10	152 06
EA	†Eagle, Alaska	64 46	141 12
KD	†Kodiak, Alaska	57 47	152 22
CV	†Cordova, Alaska	60 32	145 42
JU	†Juneau, Alaska	58 18	134 24
PR	Prince Rupert, B. C.	54 18	130 18
KA	Kamloops, B. C.	50 41	120 29
TAT	Tatoosh Island, Wash.	48 23	124 44
SE	Seattle, Wash.	47 38	122 20
NH	North Head, Wash.	46 16	124 04

Key letters, stations, and locations—Continued

Key letters	Name of station	Latitude north	Longitude west
PD	Portland, Oreg.	45 32	122 41
RO	Roseburg, Oreg.	43 13	123 20
EUR	Eureka, Calif.	40 48	124 11
RB	Red Bluff, Calif.	40 10	122 15
SM	Sacramento, Calif.	38 35	121 30
SF	San Francisco, Calif.	37 48	122 26
FN	Fresno, Calif.	36 43	119 49
PAR	Point Arguello, Calif.	34 35	120 39
LA	Los Angeles, Calif.	34 03	118 15
SPE	San Pedro, Calif.	33 44	118 16
DI	San Diego, Calif.	32 43	117 10
SPO	Spokane, Wash.	47 40	117 25
WW	Walla Walla, Wash.	46 02	118 20
BA	Baker, Oreg.	44 46	117 50
BS	Boise, Idaho	43 37	116 13
HL	Helena, Mont.	46 34	112 04
LD	Lander, Wyo.	42 50	108 45
WM	Winnemucca, Nev.	40 58	117 43
R	Reno, Nev.	39 32	119 49
SLC	Salt Lake City, Utah	40 46	111 54
MD	Modena, Utah	37 48	113 54
DV	Denver, Colo.	39 45	105 00
GJ	Grand Junction, Colo.	39 04	108 34
SA	Santa Fe, N. Mex.	35 41	105 57
PH	Phoenix, Ariz.	33 28	112 00
YU	Yuma, Ariz.	32 45	114 36
HO	§Honolulu, T. H.	21 19	157 52
MDI	‖Midway Island	28 12	177 22
ED	Edmonton, Alberta	53 33	113 30
CY	Calgary, Alberta	51 02	114 02
SC	Swift Current, Sask.	50 19	108 02
			East
FMA	*Manila, P. I.	14 35	120 59
FGM	*Guam	13 27	144 45
FHO	*Hongkong, China	22 18	114 10
FSH	*Shanghai, China	31 15	121 29
FBI	*Bonin Island	27 05	142 11
FKO	*Koshun, Formosa	40 40	129 11
FNA	*Naha, Japan	26 13	127 41
FKA	*Kagoshima, Japan	31 34	130 33
FTO	*Tokio, Japan	35 41	139 45
FNE	*Nemuro, Japan	43 20	145 35

*Observations taken at 6 a.m., 120th *east* meridian time of the same day.
†Observations taken at 4 a. m. and 4 p. m., 120th meridian time.
§Observations taken at 8 a. m. and 8 p. m., Honolulu local time.
‖Observations taken at 6:30 p. m., Midway local time of preceding day.

EXPLANATION OF CODE USED IN THE FIRST PART OF MAJOR MARINE BULLETIN

KEY TO GROUPS AND EXAMPLES

First group.

Barometric pressure (first three figures of group): Pressure, (reduced to sea level) in inches and hundredths, except that the first figure of full reading is omitted. Thus, if the corrected pressure is 29.98 inches, the figures 998 are sent, or if the reading is 30.14 inches, the figures 014 are sent.

Direction of surface wind (fourth figure of group).

0=calm, or no movement.
1=northeast.
2=east.
3=southeast.
4=south.
5=southwest.
6=west.
7=northwest.
8=north.

Force of wind (fifth figure of group): Sent according to Beaufort scale, values 0 to 9, inclusive.

Beaufort scale

Scale No.	Explanatory titles	Miles per hour (statute)	Terms used in forecasts
0	Calm	Less than 1	
1	Light air	1 to 3	Light.
2	Slight breeze	4 to 7	
3	Gentle breeze	8 to 12	Gentle.
4	Moderate breeze	13 to 18	Moderate.
5	Fresh breeze	19 to 24	Fresh.
6	Strong breeze	25 to 31	Strong.
7	High wind	32 to 38	
8	Gale	39 to 46	Gales.
9	Strong gale	47 to 54	
*10 (W)	Whole gale	55 to 63	Whole gale.
*11 (S)	Storm	64 to 75	
*12 (H)	Hurricane	Over 75	Hurricane.

*The numeral code does not admit of force in excess of 9 being sent. Therefore, the letters W, S, and H will be used for wind forces 10, 11, and 12, respectively.

NOTE.—The last column gives the terms applicable to the Beaufort scale which are used in the forecasts and warnings issued by the U. S. Weather Bureau.

Example of first group as sent: 99842.

Translation: Barometric pressure, 29.98 inches; wind from south; wind force, 2 (4 to 7 statute miles per hour).

Second group.

Present weather (first figure of group): State of weather at surface at 5 a. m. and 5 p. m.

1=clear (3 tenths or less).
2=partly cloudy (4 to 7 tenths).
3=cloudy (8 to 10 tenths).
4=raining.
5=snowing.
6=thunderstorm.
7=sleeting or hailing.
8=dense fog.

Pressure change (second figure of group) in hundredths of inch during three hours preceding observation.

0=change of .02 inch or less.
1=increase of .04.
2=decrease of .04.
3=increase of .06.
4=decrease of .06.
5=increase of .08.
6=decrease of .08.
7=increase of .10.
8=decrease of .10.
†9=increase or decrease of .12 or more.

†Whether it is an increase or decrease can be determined by barometric tendency at surrounding stations.

Precipitation (third figure of group): The amount of precipitation during the previous 12 hours is indicated by the third figure of the group. The figure used is indicative of the amount of precipitation, as:

0=none or less than .01 inch.
1= .01 inch to .10 inch.
2= .12 inch to .20 inch.
3= .22 inch to .30 inch.
4= .32 inch to .40 inch.
5= .42 inch to .50 inch.
6= .52 inch to .60 inch.
7= .62 inch to .70 inch.
8= .72 inch to .80 inch.
9= .82 inch or more.

Current temperature (fourth and fifth figures of group): Temperatures are reported in even degrees, Fahrenheit. When the temperature is zero or 100°, the fourth and fifth figures will be 00; when between 2° and 8°, inclusive, the fourth figure will be 0 and the fifth figure the temperature; when below zero, complementary figures will be used (subtract coded temperature sent from 100° to obtain correct temperature). The significant figure 1 is omitted for temperatures of 100° or more. No confusion should arise in determining below zero and above 100° temperatures when the season of the year and the location of the reporting stations are considered.

Examples of temperature coded for stations which may be 100° or more in summer and below zero in winter:

(Eagle) EA 62= 62° in summer or −38° in winter.
(Calgary) CY 00=100° in summer or zero in winter.
(Boise) BS 08=108° in summer or 8° in winter.

Examples of groups as sent and as translated:

52798: Snowing; pressure change, decrease of .04 inch during preceding three hours; precipitation .62 to .70 inch; current temperature, −2°. (If in winter.)

21374: Partly cloudy weather; pressure change, increase of .04 inch during preceding three hours; .22 to .30 inch precipitation; current temperature, 74°.

SHIP REPORTS

Ship reports are given in the International Code, in four groups of five figures each, known as the Universal Groups: PQLLL IIIGG DDFww BBVTT.

A description of the code and the code tables used will be found in the International Code for Radio Weather Reports from Ships, W. B. No. 1046.

NOTE.—The letter "X" will be substituted for any missing or unavailable data in any of the foregoing figure groups.

CONTENTS OF THE SECOND PART OF MAJOR MARINE BULLETIN

(*a*) Summary of general atmospheric pressure distribution over land and sea, including the locations of "high" and "low" areas, and the barometer readings at their centers.

(*b*) Wind and weather forecasts* for Pacific offshore areas:
North of Cape Blanco.
Between Cape Blanco and Point Conception.
South of Point Conception.

*Periods covered by the forecasts: In a. m., Major Bulletins, 24 hours, beginning at noon. In p. m., Major Bulletin, 24 hours, beginning at midnight.

LOCAL BROADCAST SCHEDULES

The table below shows additional Naval Radio Stations from which local distributions are made daily (including Sundays and holidays), their call letters, transmitting frequencies and wave lengths, the information broadcast therefrom, the hours of distribution, and the Weather Bureau stations from which the forecasts and information are supplied.

Whenever storm warnings are issued in the forenoon (based on 5 a. m. observations) they are broadcast at the same time as the wind and weather forecasts. When issued in the afternoon (based on special observations) or at night (based on 5 p. m. observations) they are broadcast at the evening hours indicated.

Ships may request any station listed herein to furnish the latest weather forecasts and warnings and weather reports.

Offshore wind and weather forecasts broadcast at or before noon and in the p. m. are for the 24 hours beginning at noon and midnight, respectively; storm warnings are for 24 hours beginning at the hour indicated in the warning messages.

Storm warnings are displayed at 24 points on the Pacific coast of the United States. Flags are used by day and lanterns by night.

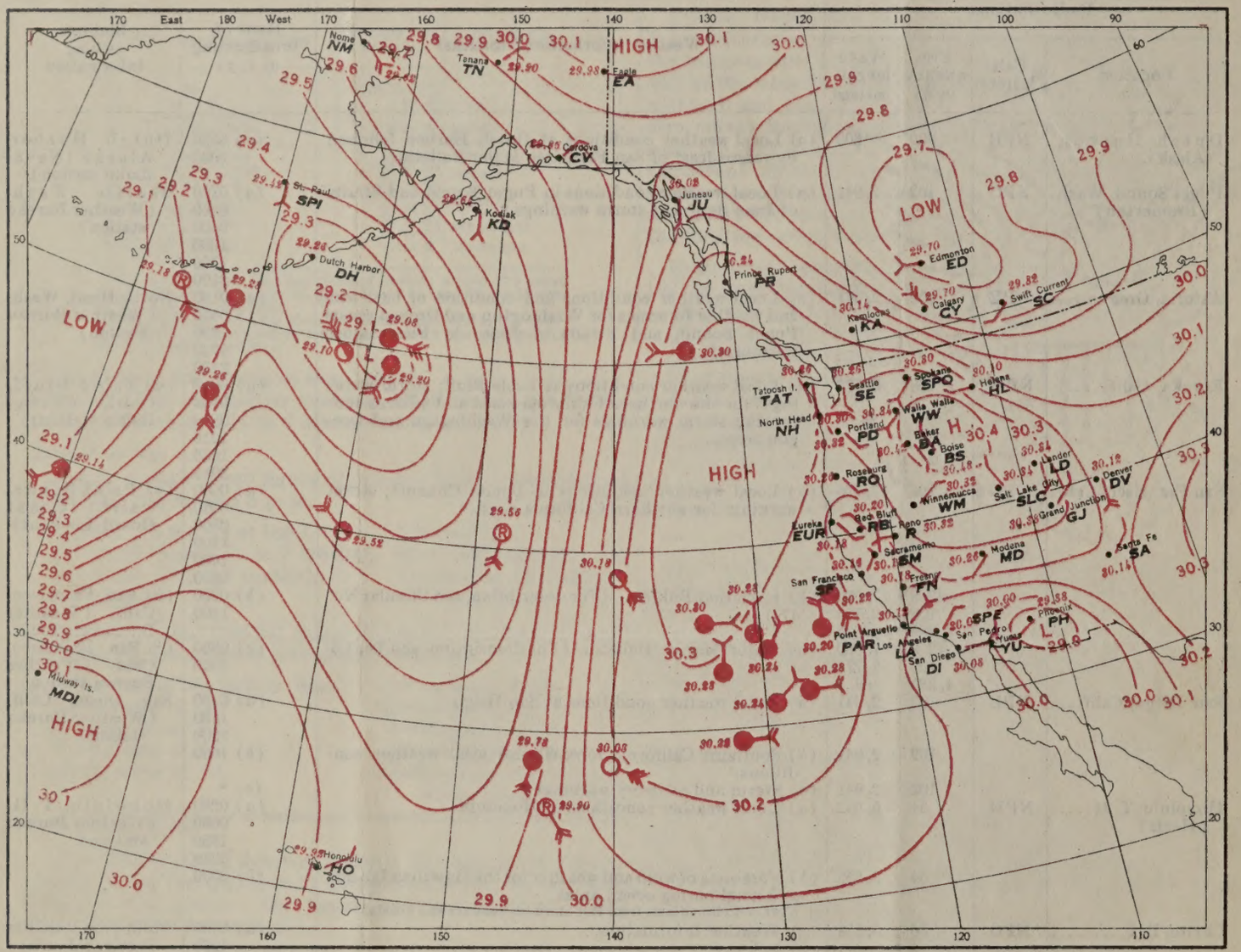
A card descriptive of storm signals and a copy of this Circular will be furnished free on application to any U. S. Weather Bureau Office on the Pacific coast.

In accordance with article 17, paragraph 2, of the General Regulations of the International Radiotelegraphic Convention of 1927, the 3-minute silent intervals are observed in connection with all broadcasts described herein.

Radio stations				Weather information broadcast	Hour of broadcasting (G. C. T.)	Stations issuing information
Location	Call letters	Frequency (k. c.)	Wave length (meters)			
Dutch Harbor, Alaska.	NPR	500	600	(*a*) Local weather conditions at Dutch Harbor, followed by rebroadcast of San Francisco Major Bulletin.	(*a*) 0530 2030	Dutch Harbor, Alaska (Naval Radio station).
Puget Sound, Wash. (Bremerton)	NPC	102	2,941	(*a*) Local weather conditions in Puget Sound and Straits of Juan de Fuca; storm warnings.*	(*a*) 0100 0300 0400 1300 1700 2100	Seattle, Wash. (Weather Bureau station).
Astoria, Oreg.....	NPE	102	2,941	(*a*) Local weather conditions and condition of bar; wind and weather forecasts for Washington and Oregon coasts, Puget Sound, and Straits of Juan de Fuca; storm warnings.*	(*a*) 0130 0430 1330 1730 2130	North Head, Wash. (Weather Bureau station).
Eureka, Calif.....	NPW	108	2,776	(*a*) Local weather conditions at Table Bluff; storm warnings* for the northern California coast and advices concerning storm warnings for the Washington and Oregon coasts.	(*a*) 0018 0433 0818 1218 1633 2018	(*a*) Table Bluff, Calif. (Naval Radio station).
San Francisco, Calif.	NPG	108	2,776	(*a*) Local weather conditions in Bonita Channel; storm warnings for northern California coast.*	(*a*) 0000 0430 0800 1200 1630 2000	(*a*) Point Bonita, Calif. (Coast Guard Lookout).
		42.8 108 4,385	7,000 2,776 68.4	(*b*) †Aviation Bulletin. (For description, see Circular No. 17.)	(*b*) 0200 1400	(*b*) San Francisco, Calif. (Weather Bureau station).
		42.8 108 4,385	7,000 2,776 68.4	(*c*) Major Marine Bulletin. (For description, see Text.)	(*c*) 0330 1530	(*c*) San Francisco, Calif. (Weather Bureau station).
San Diego, Calif....	NPL	102	2,941	(*a*) Local weather conditions at San Diego.	(*a*) 0430 1630 2200	San Diego, Calif. (Weather Bureau station).
		102	2,941	(*b*) Southern California forecast and local weather conditions.	(*b*) 1630	
		102	2,941	(*c*) Storm and advisory warnings.*	(*c*) *	
Honolulu, T. H..... (Heeia)	NPM	54	5,552	(*a*) Local weather conditions at Honolulu.	(*a*) 0230 0630 1830 2230	Honolulu, T. H. (Weather Bureau station).
		54	5,552	(*b*) Forecasts of wind and weather for the Hawaiian Islands and neighboring ocean areas. NOTE.—No broadcasts from Honolulu on Sundays and holidays.	(*b*) 2230	
Cavite, P. I.....	NPO	56	5,354	(*a*) Weather information.	(*a*) 0430 1230 1400	Philippine Weather Service (Manila).
		8,870 17,740	33.8 16.9			
Tutuila, Samoa Is...	NPU	106	2,828	Weather information.	2300	Samoan Weather Service (Tutuila).
Guam.....	NPN	500	600	Typhoon warnings.	When issued, and hourly after silent period for 12 hours or until superseded.	

†Aviation Bulletin is interrupted at 0245 until 0300 for rebroadcast of time signals from Washington, D. C., made on the same frequencies.
*Storm warnings are broadcast on receipt and after first silent period on 500 kilocycles (600 meters).

CHART SHOWING HOW WEATHER REPORTS BROADCAST IN MAJOR BULLETINS MAY BE ENTERED AND USED IN THE PREPARATION OF WEATHER MAPS AT SEA



This map is made up of data distributed by radio. Three elements are shown (in red) for each station and ship: Barometric pressure in inches, indicated by figures; wind direction, shown by arrow which flies with the wind; and wind force (Beaufort scale), indicated by the number of feathers on the arrow. The character of the weather is indicated for ships. The red lines are isobars that pass through points having equal barometric pressure, and were drawn from inspection after the pressure values were entered. The centers of areas of low pressure are indicated by the word LOW and centers of high pressure by the word HIGH. Symbols indicate state of weather: ○ clear; ◑ partly cloudy; ● cloudy; Ⓡ rain; Ⓢ snow; Ⓕ fog; Ⓜ report missing.

In the Northern Hemisphere winds blow spirally inward, counter-clockwise, toward and around the center of a LOW, while from the center of a HIGH they blow spirally outward in a direction similar to that described by the hands of a clock. The steeper the pressure gradient (that is, the closer the isobars are together) the higher are the wind velocities.

Copies of a base chart for this purpose will be supplied free to vessel masters who regularly take and forward weather observations to the U. S. Weather Bureau, or to the Hydrographic Office, U. S. Navy.

(WB—12-16-31—5,000)